PPB 70-1691

SECRET

Executive Registry
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NPIC/D-152-70

8 JUN 1970

MEMORANDUM FOR: Executive Director-Comptroller

THROUGH : Chairman, Information Processing Board

SUBJECT : Request for Approval of a Contract for a Diagnostic Computer Program for the High Precision Stereo Comparator with [redacted] from FY-1970 R&D Funds

25X1
25X1

1. This memorandum requests approval for the commitment of R&D funds for a NPIC contract. The specific request is stated in Paragraph 3.

2. The High Precision Stereo Comparator (HPSC), which is presently under development, is scheduled to become operational by the end of 1970. This sophisticated comparator provides stereoscopic measurements accurate to a fraction of a micrometer (micron). This extremely complex, computer controlled, optical-electromechanical device is precision engineered; however, as with every manmade device, trouble-shooting and maintenance will be required from time to time to determine causes of failure as well as for keeping all of the components of the system in good operating order and in proper alignment. Regularly scheduled preventive maintenance checks will have to be made in order to be assured that the comparator and its numerous interrelated systems and subsystems are functioning as required. This will ensure that consistent and accurate data is provided. Since the comparator system is so complicated and requires skills in several specialized fields to diagnose subsystem failures, NPIC maintenance personnel have requested that the Research & Engineering Division develop a Diagnostic Routine to help cope with this problem. The proposed routine will be programmed into the HPSC's internal computer, a DDP-516, and utilized to perform certain exercises to allow maintenance personnel to quickly locate any problem areas and to help isolate the specific subsystem or subsystems involved. This program will provide a means to check out and verify the forty subsystems of the HPSC in one-tenth the time required

DDR-DUPE

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GROUP 1
Excluded from automatic downgrading and declassification

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for a manual check-out procedure (1/2 to 1 hour versus 10 hours). Utilizing this scientific approach, repairs and/or alignments can be made with a minimum of down time for the HPSC. Furthermore, variation of this routine can be used, at regularly scheduled intervals, to perform complete preventive maintenance checks. Additionally, the operator can also check the relative stereoscopic orientation; that is, the positions of the instrument's optical transformation elements with regard to a set of test stereograms. The routine is such that this can be done easily and quickly at the beginning of each daily operation.

3. [redacted] the prime contractor 25X1
for the HPSC, has proposed a seven-to-ten month program directed toward developing two series of diagnostic computer routines designed to provide a rapid and controlled technique for operating all computer directable elements of the HPSC on an individual basis. The routine will lead the maintenance technician--through a question and answer technique--to perform the necessary functions requiring his attention. The diagnostic program will exercise all the mechanical moving subassemblies throughout their ranges at a variety of speeds. The technician will be able to observe the position of the readout dials on the control console and visually inspect the optical system through the eyepieces. He will also directly observe the operation of the various electromechanical drives.

4. Some slight hardware modifications and the addition of circuitry to gain access to otherwise unavailable electronic signals will be required. The contractor also proposes to design, write, and prepare the two series of diagnostic computer programs. He will deliver a punched paper tape of the programs and add a manual switching panel to the comparator. Since this diagnostic routine is to be developed by the [redacted] engineers having the most intimate knowledge of the 25X1
equipment, the undertaking is considered to have minimum technical risk. The question is not of whether the routine will work, but rather of how well and how simply it can be made to function.

5. The Diagnostic Computer Program will provide an error analysis capability for a unique High Precision Stereo

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comparator built by [redacted] is the only contractor with an intimate enough knowledge of the equipment to develop the routine; hence, this is a sole source item. 25X1

6. No follow-on or continuation of this program is anticipated. The project has been coordinated with Technical Services & Support Group/Engineering Support Division, Imagery Exploitation Group/Photogrammetry Division, and Production Support Group/Automated Information Division.

7. The security classification of this contract will be CONFIDENTIAL. The association is CONFIDENTIAL, and the title is UNCLASSIFIED.

8. It is requested that approval be granted to negotiate a contract with [redacted] 25X1
a cost not to exceed [redacted] from FY-1970 R&D Funds. 25X1

[redacted] 25X1

ARTHUR C. LUNDAHL
Director
National Photographic Interpretation Center

Attachments:
1. Proposal
2. Form 2420

CON [redacted] 25X1

Acting Deputy Director for Intelligence — 9 JUN 1970 Date

CONCUR: [redacted] 25X1
Chairman, Information Processing Board — 10 JUN 1970 Date

APPROVED: [redacted] 25X1
Executive Director-Comptroller — 11 JUN 1970 Date

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